Chapter 16
The Comprehension of Figurative Images of Food Items: The Effect of Ergonomic Guidelines in Graphic Design

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ABSTRACT

Graphic design is a discipline responsible for creating clear and concise visual messages that can enhance the understanding of information, easing the comprehension of the message when using different kinds of images. In ergonomics, there have been studies about image comprehension, helping to set up and prove guidelines that enhance the efficacy and efficiency of symbols, icons, and pictograms. The goal of this research was to assess, within four stages, the comprehension of the figurative food illustrations and the effectiveness of ergonomic guidelines when used in the design process of these illustrations. The results showed that the familiarity and comprehension of some foods are limited due to the nutritional or cultural habits of the users. When comparing the graphic styles that use or lack of ergonomic guidelines, it is clear that the use of these guidelines helps the user to comprehend and identify better the graphical information presented.

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INTRODUCTION

Graphic design is a discipline which concerns itself with generating clear and concise visual messages. These messages are generated in conceptualized form, always taking the user into account, and always coming from a design perspective. While each message is mentally converted to an image which is true to life, some need to be transformed into abstractions, either for rapid understanding or to generate an image. For this reason, Abraham Moles describes the image “as a prop for visual communication that materializes a fragment of the visual space, not to mention the perceived universe” (Moles, 2007).

Likewise, Moles uses the term “iconicity” to describe a concept which expresses categories and levels of relationship, between an image and its corresponding real object. He postulates a decreasing scale of iconicity with which objects are classified according to their resemblance to reality, beginning at Level 12 and finally arriving at an incomprehensible abstraction at Level 0.

Another use of the process of graphic abstraction is the elimination of characteristic features of the objects to be portrayed. For this reason, Joan Costa mentions that the lower the level of iconicity, the higher the level of abstraction (Costa, 1998). Therefore, at higher levels of iconicity, an image will conserve a greater proportion of its real-object properties. For example, at Level 5 on the iconicity scale (called “nonrealistic figurative image”), the object is still identifiable but its spatial relationships are altered. Such figurative images permit rapid identification of the objects portrayed; Hutchins, Hollan & Norman (1985) coincide with this viewpoint, affirming that the comprehension efficacy of an image can be attributed to a short articulation between the image and the real object, the shorter, the better.

Certainly, graphics do much more than simply give a good impression, they are an essential part of communication. As society becomes more visually oriented, graphics are becoming the principal channel of transmission of information to the end user (Robinson, 2009). Additionally, graphics can increase comprehension of textual information facilitating message processing and in some cases being more quickly perceived than isolated text (Rogers et al., 2000).

This study will focus on the design of recipes for dietary plans, in which figurative images provide a convenient alternative for representing the ingredients to be used. Thanks to their particular characteristics, these images make comprehension not only possible but also enjoyable, by providing a reader-friendly interface. In many cases, images work better than words to help the user identify ingredients and understand food preparation procedures (Prado, Diaz de Leon, Zambrano, Cisneros & Cárdenas, 2016).

BACKGROUND

Since decades ago, various studies have been made in the cognitive ergonomics field which helped to establish ergonomic principles or guidelines that allow for a better and faster comprehension of symbols and pictograms in various environments, especially in the case of pictograms which warn of danger (Cushman y Rosenberg, 1991; Hancock, Rogers, Schroeder y Fisk, 2004; Laughery, 2006; Jiamsanguanwong y Umemuro, 2014). Many of these ergonomic guidelines can be applied to other environments where the comprehension of an image’s message is necessary in order to realize a particular action, as is the case in this study.

ISO norm 3864 (ISO, 2011) indicates that, in order for a graphic abstraction to be acceptable, it must be adequately understood by between 67% and 85% of all users (ANSI, 1987). Thus, Cognitive Ergonomics studies the understanding and retention of the meanings with diverse levels of graphic abstractions.